

# CRS Report for Congress

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## The Iran Nonproliferation Act and the International Space Station: Issues and Options

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### Summary

The Iran Nonproliferation Act of 2000 (INA) was enacted to help stop foreign transfers to Iran of weapons of mass destruction, missile technology, and advanced conventional weapons technology, particularly from Russia. Section 6 of the INA bans U.S. payments to Russia in connection with the International Space Station (ISS) unless the U.S. President determines that Russia is taking steps to prevent such proliferation. The ISS is currently under construction in orbit. According to current plans, the National Aeronautics and Space Administration (NASA) will become dependent on Russia for certain ISS crew-related services beginning in April 2006 for which NASA must pay. Thus, the INA could significantly affect U.S. utilization of ISS. This report outlines the history of INA, its effect on Russian and Iranian proliferation, its impact on the ISS program, and options for resolving associated issues. It will not be updated.

### Introduction

The United States has grave concerns about the proliferation threat posed by Iran's aggressive pursuit of nuclear, chemical, and biological weapons, ballistic missiles, and advanced conventional weapons. The United States has passed laws and used sanctions to deter countries such as Russia, China, and North Korea from providing related technologies to Iran (see CRS Report RL32048.) The Iran Nonproliferation Act (P.L. 106-178) added two new provisions to the existing laws: it widened some of the sanctions applicable to foreign persons, and, in Section 6, contained a ban on U.S. government payments to Russia in connection with the International Space Station unless the U.S. president makes a determination that Russia is taking steps to prevent proliferation of weapons of mass destruction (WMD), and ballistic and cruise missiles, to Iran.

**The International Space Station (ISS) and Nonproliferation.** The International Space Station (ISS) is a research laboratory in space being built as a U.S.-led international partnership (see CRS Issue Brief IB93017). Long-duration "Expedition" crews composed of Russian and American astronauts have occupied the ISS since November 2000, rotating on 4-6 month schedules.

Europe, Canada, and Japan became partners in NASA's space station program in 1988. The United States invited Russia to join in 1993, motivated in part by nonproliferation concerns. Through the "Gore-Chernomyrdin Commission," the Clinton Administration sought to encourage Russia to abide by the Missile Technology Control Regime (MTCR) to stop sales of ballistic missile technology. In particular, the United States objected to Russia's planned sale to India of cryogenic rocket engine technology and know-how, potentially worth \$400 million to Russia. On September 2, 1993, Vice President Gore announced that Russia would join the space station program and that Russia had agreed to abide by the MTCR (which it would join formally in 1995). The United States agreed to pay Russia \$400 million for space station cooperation. On October 6, 2003, White House Science Adviser John Gibbons told a congressional subcommittee that "this initiative ... fits into the context of a much larger partnership with Russia.... Our negotiations ... produced a key understanding that Russia is committed to adhere to the guidelines" of the MTCR.<sup>1</sup> Clinton Administration officials reiterated this linkage during the mid-to-late 1990s.

**INA Origins.** While U.S. cooperative programs with Russia were expanding, it also became clear that Russia was a source of sensitive technology to Iran. In 1995, Russia signed an agreement with Iran to finish construction of the Bushehr nuclear power reactor, a transaction worth \$800 million or more. In 1996, reports surfaced of Russian entities providing ballistic missile assistance to Iran, including training; testing and laser equipment; materials; guidance, rocket engine, and fuel technology; machine tools; and maintenance manuals (see CRS Report RL30551). Director of Central Intelligence George Tenet testified to the Senate Intelligence Committee in early 1998 that Iran was further along in its ballistic missile program than previously estimated because of Russian help (Available at [[http://www.cia.gov/cia/public\\_affairs/speeches/1998/dci\\_speech\\_012898.html](http://www.cia.gov/cia/public_affairs/speeches/1998/dci_speech_012898.html)]). The "Rumsfeld Commission" on the ballistic missile threat concluded in 1998 that "Russian assistance has greatly accelerated Iran's ballistic missile program."<sup>2</sup> The report estimated that Iran could have an ICBM capability within five years of a decision to proceed.

The 105<sup>th</sup> Congress responded with H.R. 2709, the Iran Missile Proliferation Sanctions Act. Passed by overwhelming margins, the bill required the United States to impose sanctions against countries that proliferated ballistic missile technology to Iran. President Clinton vetoed the bill on June 23, 1998, objecting to low evidentiary thresholds and mandatory sanctions [<http://thomas.loc.gov/cgi-bin/query/z?r105:H24JN8-82:/>]. President Clinton forestalled an attempt to override his veto by imposing sanctions on seven Russian entities that Moscow began to investigate in mid-July for alleged illegal exports to Iran. The sanctions were imposed under Executive Order 13094, which expanded the President's authority to ban U.S. trade with, aid to, and procurement from foreign entities assisting WMD programs in Iran or elsewhere.

Iran conducted the first test flight of its medium-range Shahab-3 missile that summer, however, and reports of Russian assistance persisted. On January 10, 1999, the

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<sup>1</sup> House Committee on Science, Space, and Technology. Subcommittee on Space. U.S.-Russian Cooperation in the Space Station Program: Parts I and II. Hearing. October 6, 14, 1993. p. 45.

<sup>2</sup> Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States. [<http://www.house.gov/hasc/testimony/105thcongress/BMThreat.htm>]

Clinton Administration announced economic sanctions against three more Russian institutions. Moscow denied the allegations and protested the sanctions. On May 20, 1999, House International Relations Committee Chairman Gilman introduced H.R. 1883, the Iran Nonproliferation Act, covering ballistic missiles, WMD, and advanced conventional weapons. According to the committee's report (H.Rept. 106-315, Part 1), the bill was "designed to give the Administration additional tools with which to address the problem and the countries that are transferring dangerous weapons technology to Iran powerful new reasons to stop proliferating...In addition, it seeks to create new incentives for the Russian Space Agency to cooperate in efforts to stem the proliferation of weapons technology to Iran." (p. 8) The bill allowed sanctions, but they were not mandatory as in the previous legislation. The House and Senate each passed the INA unanimously, and it was signed into law on March 14, 2000 (P.L. 106-178).

**INA's Section 6 and the ISS.** Section 6 of the INA concerns payments by the U.S. Government to Russia in connection with the ISS. On July 29, 1999, during markup of Section 6 by the House Science Committee's Subcommittee on Space and Aeronautics, Science Committee Chairman James Sensenbrenner explained that "Earlier this year, there were publications of the fact that entities of the Russian Space Agency were violating the MTCR. That's why there is Section 6 in this bill."<sup>3</sup> From 1994-1998, NASA had paid Russia approximately \$800 million through several contracts for space station-related activities. Those payments ended because Section 6 prohibits the U.S. Government from making payments in connection with ISS to the Russian space agency, organizations or entities under its control, or any other element of the Russian government, after January 1, 1999, unless the President makes a determination that Russia's policy is to oppose proliferation to Iran, that Russia is demonstrating a sustained commitment to seek out and prevent the transfer of WMD and missile systems to Iran, and that neither the Russian space agency nor any entity reporting to it has made such transfers for at least one year prior to such determination. The President must notify Congress five days in advance of making such a determination, and provide a written justification. The act does not include a provision for Congress to approve or disapprove a determination. Exceptions are made for payments needed to prevent imminent loss of life by or grievous injury to individuals aboard ISS (the "crew safety" exception); for payments to construct, test, prepare, deliver, launch, or maintain Russia's Service Module; and \$14 million for certain Russian docking hardware already under consideration at the time the INA was being debated. The President must provide reports or notifications to Congress within specified time limits if the exceptions are used. President Clinton provided the required notification for the \$14 million on June 29, 2000. No determinations, and no other notifications, have been made. At an October 12, 2000 House International Relations Committee hearing, NASA was criticized for its broad interpretation of the word "imminent" in the crew safety exception.

## **Impact of the INA on NASA's Use of the ISS**

The agreements that govern the ISS program obligate Russia, inter alia, to provide crew return services — essentially a "lifeboat" so crew members can return to Earth in an emergency — for three crew members throughout the lifetime of the ISS. The United

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<sup>3</sup> House Committee on Science. Markups of H.R. 356, H.R. 1883, H.R. 2607, and H.R. 2767. July 29, September 9, and November 3, 1999. p. 44

States is obligated to provide such services for at least four people once assembly of the ISS is completed. Prior to the February 2003 space shuttle *Columbia* tragedy, that milestone was expected in 2006. The plan was for the ISS to be occupied by seven-person Expedition crews, with the Soyuz providing crew return for three, and a U.S. "Crew Return Vehicle" (CRV) providing it for four. However, the Bush Administration canceled NASA's CRV program because of cost growth in the ISS program. It subsequently initiated a successor, the Orbital Space Plane, but that was canceled a year later. Thus, only Russian Soyuz spacecraft are available for crew return.

Under a 1996 "Balance Agreement" between NASA and the Russian space agency, Russia is obligated to provide 11 Soyuz spacecraft for crew rotation of U.S. and Russian crews; the Soyuz also serves as a crew return vehicle. The last of those 11 Soyuzes is scheduled for launch in October 2005, returning to Earth in April 2006. After that, Russia no longer must allocate any of the seats on its Soyuzes for U.S. astronauts. It can sell those flight opportunities to whomever it wishes. Russian space officials have repeatedly indicated that they will not continue to provide crew return services to NASA at no cost once their obligations are fulfilled under the Balance Agreement.

NASA's original plan was to use its space shuttles to transport NASA and other ISS partners' astronauts. The shuttle docks at the ISS typically for 1-2 weeks to exchange crews and provide other services. NASA and other non-Russian astronauts remaining on the ISS after the shuttle departed would rely on NASA's CRV for crew return. The cancellation of the CRV, and President Bush's announcement of a new "Vision for Space Exploration" in January 2004, changed those plans, however. The Vision directs NASA to return humans to the Moon by 2020 and someday send them to Mars (see CRS Report RS21720). Consequently, the CRV's successor (the Orbital Space Plane) was canceled, so NASA will have no crew return capability of its own for the ISS. Unless NASA changes its policy and decides to permit its astronauts to live aboard ISS without a lifeboat, U.S. astronauts will not be able to be part of long-duration missions unless NASA can obtain Russian services. If Russia will not provide them at no cost, NASA either must forego having its astronauts on ISS for long-duration missions, or be permitted to pay Russia. (It is not clear how the other non-Russian partners will cope with the change in U.S. plans, although Europe now buys seats on Soyuz for its astronauts.)

Also, the shuttle system would be retired once space station construction is completed, now expected in 2010. The Vision calls for NASA to build a new Crew Exploration Vehicle (CEV) to take astronauts to and from the Moon, but it is not clear if it will be designed to provide routine crew transport services to the ISS. In any case, it is not expected to be available until 2014. Therefore, for at least four years (2010-2014), NASA would not be able to launch astronauts into space at all. Thus, NASA's ability to use the ISS, being built largely at U.S. expense, would be dependent on Russia.

## **Impact of INA on Russian and Iranian Proliferation Behavior**

In 2003, a State Department official explained that U.S. bilateral cooperation with Russia has led to some improvements in Russia's export control laws and implementing

regulations.<sup>4</sup> He noted that Russia had updated seven control lists, extended its laws to intangible transfers of technology, established an Export Control Commission in January 2001, and revised its administrative code in July 2002 to give the Department of Export Control enforcement authority. Those improvements were not directly attributed to the INA, though. A NASA official commented that INA has been a “source of pressure on Russia to improve its proliferation record.”<sup>5</sup> However, the CIA reported that in 2003:

Russian entities...continued to supply...ballistic missile-related goods and technical know-how to countries such as Iran, India, and China. Iran’s earlier success in gaining technology and materials from Russian entities helped accelerate Iranian development of the Shahab-3, and continuing Russian entity assistance has supported Iranian efforts to develop new missiles and increase Tehran’s self-sufficiency in missile production...Despite progress in creating a legal and bureaucratic framework for Russia’s export controls, lax enforcement remains a serious concern.<sup>6</sup>

INA proponents argue that Section 6 has had a positive impact on Russian proliferation behavior because it has created a strong economic incentive for the Russian space agency to become a proponent of Russian nonproliferation compliance. According to the State Department, the Russian space agency’s former head, Yuri Koptev, instituted significant security controls at many of the agency’s organizations.<sup>7</sup> Critics, however, maintain that the Russian space agency is just one agency, and that the Ministry of Defense and Ministry of Atomic Energy have committed other proliferation “crimes” related to Iran that are untouched by the INA.

Iran’s efforts to acquire foreign WMD technology seem to continue unabated. A key question is whether the INA has forced Iran to look beyond Russia for technology. Reports suggest that Iran got significant assistance in its nuclear program from Pakistan; in its chemical weapons program from China; and that it continues to seek assistance from Russia in biological weapons capabilities. However, these relationships predate the INA. Nonetheless, it is clear that the Shahab-3 has not progressed as quickly as analysts thought it would in 1998; seven years later, Iran has still not fielded the missile in any quantities, although it claims it is operational and in production.

## Issues and Options

A key issue is whether the nonproliferation benefits gained by linking the ISS to Russian proliferation behavior are worth the costs to the U.S. space program at this point in time. Although Section 6 may provide incentives for the Russian space agency to cooperate, Russian proliferation to Iran extends beyond the Russian space agency and ballistic missiles to entities involved in other WMD. It appears unlikely that the President

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<sup>4</sup> Answers to questions for the record for a June 10, 2003 hearing before the House Science Committee, Subcommittee on Space and Aeronautics, on U.S.-Russian Cooperation in Space. See [[http://commdocs.house.gov/committees/science/hsy87546.000/hsy87546\\_of.htm](http://commdocs.house.gov/committees/science/hsy87546.000/hsy87546_of.htm)].

<sup>5</sup> Ibid.

<sup>6</sup> CIA. Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Weapons, 1 July through 31 December 2003. [[http://www.cia.gov/cia/reports/721\\_reports/july\\_dec2003.htm](http://www.cia.gov/cia/reports/721_reports/july_dec2003.htm)]

<sup>7</sup> Answers to questions for the record, op. cit.

would determine that Russia is complying with the INA. It may be equally unlikely that the INA would be repealed on the basis that there are other laws addressing the issue of proliferation to Iran by Russia and other countries; Iran's nuclear program at present is an urgent concern.

From a space program perspective, the threshold question is the extent to which NASA needs to have U.S. astronauts on ISS for long duration missions between 2006 and 2010, and to have any astronauts there after 2010. Under the Vision, the only U.S. research that will be conducted on ISS is that needed to support the Vision. Questions thus arise as to whether adequate research could be performed on Earth (and, eventually, the Moon), or if NASA could pay astronauts from the non-Russian ISS partners to conduct the research.

If NASA concludes that it must have its astronauts on ISS, and assuming that the INA is not repealed and the President does not make the determination required by the act, there are several options, though many appear unlikely to be pursued for political, cost, safety, timeliness, or other reasons. For example, the President could notify Congress that one of the exceptions — maintenance of the Service Module (now named *Zvezda*) or crew safety — applies. Or, the act could be amended to allow NASA to purchase crew transport and/or crew return services from the Russian space agency. Alternatively, the act could be amended to allow NASA to purchase Russian designs, materials, and know-how to set up a Soyuz manufacturing plant in the United States. Or the Bush Administration could conclude that the prohibitions in the act do not apply to the Russian company Energia, which manufactures Soyuz. NASA then could purchase Soyuz spacecraft from that company. If NASA purchases Soyuz spacecraft or builds them in the United States, it may be possible to modify them for launch on a U.S. or other non-Russian launch vehicle. The Bush Administration could conclude that the 1996 Balance Agreement, which predates the INA, could be used as a mechanism for obtaining the needed services. Or the U.S. and Russian governments could agree that Russia will provide the services to NASA at no cost based on some other *quid pro quo*.

Instead of attempting to find a means of obtaining relief from the INA, Congress and the Administration could approach the issue from the perspective of ensuring that NASA has an independent capability to use the ISS. It must be noted, for example, that even if a method is found to allow NASA to pay Russia, that is only one step in ensuring U.S. crew access to the ISS. An agreement still would have to be negotiated with Russia on its terms and conditions. Russia could charge too high a price, or set operational procedures with which NASA disagrees, complicating such negotiations. The political relationship between the two countries also could change. The only way to ensure that U.S. astronauts can use ISS is to have a U.S. spacecraft that can make the journey. Thus, for the near term, NASA could modify the shuttle so that it can dock at ISS for longer periods of time. For the longer term, NASA could be directed to ensure that the shuttle remains operational until the CEV is available, that the CEV be designed to provide crew transport for ISS, and that the CEV (or a version of it) be designed to serve as a crew return vehicle. The cost and schedule for these options may be prohibitive, however, and questions remain about the safety of the shuttle (it has not yet returned to flight status following the *Columbia* tragedy), and how many more flights it should make.